

## **A SEARCH FOR ASTEROIDS ORBITING WHITE DWARFS**

Rosanne Di Stefano

Smithsonian Institution/Smithsonian Astrophysical Observatory

GO20030

Do white dwarfs host asteroid systems? Because asteroids are fossils of planet formation, the answer to this question has implications for our understanding of the earliest stages of planetary systems. In addition, because white dwarfs are remnants of stars like our Sun, the discovery of asteroids orbiting them may teach us about the evolution and survival of planetary systems. NASA's launch of Kepler provides us with the first tool capable of helping to answer this question. We propose that Kepler observe two of the brightest white dwarfs in its field in 1-minute cadence mode with the goal of searching for transits by asteroids in orbit around them. This scientific investigation makes full use of NASA's newest mission, and in fact would not be possible without it. To detect the passage of 100-km class objects against the disk of a white dwarf requires Kepler's unique photometric sensitivity and continuous monitoring. The analysis we propose to conduct will open a new field of endeavor that can help achieve NASA's science goals for the study of the origin and evolution of planetary systems.